

The Eastern Frontier of the Gravettian in the Kostenki-Borshchevo Palaeolithic Locality, the Don Basin, Russia

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The Gravettian cultural phenomenon refers to the middle phase of the European Upper Palaeolithic periodization (30–20 ky BP (uncal)). The previous pattern of the Gravettian in the Kostenki-Borshchevo area of the Middle Don basin yielded a two-phase periodization. The early phase was thought to be presented by Kostenki 8/II dating back to ~27 ky BP (uncal). The second phase comprised the Kostenki-Avdeev culture (the Eastern Gravettian) sites: Kostenki 1/I, Kostenki 13, 18, Kostenki 14/I (23–21 ky BP (uncal)) and five typologically particular assemblages altogether being in accordance with the late Gravettian. New data on the archaeology and absolute chronology obtained in the recent excavations enabled to clarify the Gravettian sequence as well as to integrate the local assemblages into general European taxonomy. The main advance was achieved in the defining of the middle Gravettian phase newly dated 25–24 ky BP (uncal) (sites Kostenki 4, Borshchevo 5 and probably Kostenki 9). This cultural complex was associated with the Pavlovian being determined by tools typology and in particular by the series of stone items treated with polishing. It was specified that along with the Kostenki-Avdeyev culture the latest phase comprised Kostenki 21/III as the local final Gmelin type Gravettian formerly conjoined together with Anosovka assemblage (Kostenki 11/II). The latter was attributed to the non-Gravettian/proto-Magdalenian. Thus, the Gravettian technocomplex in the basin of the Don acquired a three-part sequence of the early (27–25 ky BP (uncal)), middle (25–24 ky BP (uncal)) and late (23–21 ky BP (uncal)) phases which corresponds to the periodization in Central Europe.

Keywords: the Middle Upper Paleolithic, the Gravettian, material culture, periodization, cultural attribution.

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Граветт как культурный феномен в европейской периодизации верхнего палеолита, относится к его средней стадии, или 30–20 тыс. л. н. в некалиброванных значениях радиоуглеродного возраста (т. л. н.). Граветтийские памятники, исследованные в Костёнковско-Борщёвском районе на Среднем Дону, благодаря сочетанию культурного разнообразия комплексов с концентрированным расположением в пределах локального участка Дона, исключительно важны для изучения данной эпохи. В настоящей работе предпринята попытка ревизии периодизации местного граветта по этапам и культурным группам в свете появления новых материалов и новых ¹⁴C-датировок. Прежние обобщения по граветту Костёнковско-Борщёвского палеолитического района фокусировались на наиболее ярких комплексах, таких как памятники костёнковско-авдеевской культуры (восточный граветт). Структура местного граветта имела двучастную периодизацию. Ранняя фаза соответствовала комплексу Костёнок 8/II с датировкой ~27 т. л. н. Вторая фаза включала памятники восточного граветта: Костёнки 1/I, Костёнки 13 и 18, Костёнки 14/I (23–21 т. л. н.) и еще пять обособленных комплексов, отнесенных к позднему граветту. Археологические и радиометрические данные, полученные новейшими раскопками, позволили уточнить периодизацию граветта, а также показать соотношение локальных комплексов с европейским контекстом. Главным достижением можно считать выявление фазы среднего граветта с новыми датами 25–24 т. л. н. (стоянки Костёнки 4, Борщёво 5 и, вероятно, Костёнки 9). На основании типологии орудий и специфики каменных изделий, обработанных шлифовкой, данный культурный комплекс атрибутирован как павловьен. Установлено, что наряду с костенковско-авдеевской культурой к позднейшей фазе граветта принадлежит гмелинский вариант комплекса Костенки 21/III, который ранее соотносили с ановосским комплексом Костенок 11/II. Последний был атрибутирован как неграветтийский/протомадленский. Таким образом, технокомплекс граветта на Дону имеет трехчастную структуру, включающую фазы: раннюю (27–25 т. л. н.), среднюю (25–24 т. л. н.), и позднюю (23–21 т. л. н.), которые соответствуют периодизации граветта в Центральной Европе.

Ключевые слова: верхний палеолит, граветт, материальная культура, периодизация, культурная атрибуция.

Introduction

The Gravettian is a cultural phenomenon in the Upper Paleolithic that refers to its middle stage (30–20 ky BP (uncal)). Territorial and chronological groups of sites comprising the Gravettian technocomplex are quite different in terms of the material culture variability. However, a number of common features can be enumerated:

- 1) The preference of flint raw materials of exceptionally high quality.
- 2) Pronounced lamellar character of the stone industry. Most of the tools are made on large and medium blades, while microliths employ regular microblades.
- 3) Extensive use of abrupt edge retouching.

- 4) Distinctive bone and ivory inventory, superior in its diversity to the instruments of other traditions.
- 5) Realistic zoomorphic and anthropomorphic figurines, the most typical being female full-figured Venuses.
- 6) No clear variation in seasonal or functional specialization of sites combined with complexity of dwelling areas.
- 7) Important role of the mammoth in hunting.

For a long time, the Gravettian studies had been focused on interpreting the sites of the Kostenki-Avdeevo type. Thus, a number of similar terms almost identical in meaning appeared: “Willendorf-Kostenki culture”, “Kostenki culture”, “Eastern Gravettian”. Kostenki-Avdeevo sites lay the foundation for the concept of cultural unity of the Central and Eastern European population, established on the Gravettian basis at the middle stage of the Upper Paleolithic. G.P. Grigoriev introduced a concise term for the aforementioned period — “the Gravettian episode”¹.

Discussion on the status of this community, which encompassed modern Austria, Moravia, southern Poland, as well as the basins of the Dnieper, Don and Oka, has never yielded a definite understanding of its internal cultural variability and periodization. There exists an even greater range of opinions concerning the interpretation of external archaeological connections and the assessment of the Gravettian dynamics². Among the sites that preceded the glacier maximum there are those on the Russian Plain which belong to the Gravettian technocomplex, but cannot be classified as part of the Eastern Gravettian in a strict sense. For instance, Molodovo 5/VII on the Dniester, Khotylevo 2 and Pushkari 1 on the Desna, Gagarino on the upper Don, a number of sites with Gravettian layers in Kostenki-Borshchevo region (hereafter referred to as KBR) on the middle Don. In recent years, similar sites have been discovered on the Russian Plain: Borshchevo 5, Troyanovo 4, Ozerovo, etc.³

Periodization

Many researchers have made attempts to systematize the Gravettian sites of the Russian plain. Kh. A. Amirkhanov introduced a classification of the main gravettoid complexes according to the degree of typological proximity⁴. The sites are paired based on the basis of the leading tool types (shouldered points, leaf-shaped points and Kostenki type knives) and divided into Kostenki-Avdeevo, Khotylevo-Gagarino, Kostenki-Borshchevo

¹ Grigorev G. P. *Edinstvo Evropy v pervyi raz: gravettiiskii epizod // Vzaimodeistvie drevnikh kul'tur i tsivilizatsii i ritmy kul'turogeneza*. St. Petersburg, 1994. P. 12–14.

² Bulochnikova E. V. *Vchera i segodnia poniatiia “vostochnyi gravet'en” // Vostochnyi gravett*. Moscow, 1998. P. 67–73.

³ Lisitsyn S. N. *Khronostratigrafiia i arkheologii stoianki Borshchevo 5 po dannym raskopok 2002–2003 gg. // Kostenki i ranniaia pora verkhnego paleolita Evrazii: obshchee i lokalnoe*. Voronezh, 2004. P. 66–79; *Zalizniak L. L., Stepanchuk V. M., Vetrov D. O., Tovkailo M. T., Ozerov P. I.* *Gravetska stoianka Troianove 4 pid Novomirgorodom // Kam'iana doba Ukraini*. Vip. 10. Kii, 2007. P. 102–125; *Zalizniak L. L., Vetrov D. O.* *Nova gravetska stoianka Ozerove na Kirovogradshchini // Kam'iana doba Ukraini*. Vip. 10. Kii, 2007. P. 56–62; *Demidenko Yu. E.* *Gravett Bol'shogo Severnogo Prichernomoria v kontekste verkhnego paleolita Vostochnoi Evropy // Stratum plus*. 2018. No. 1. P. 265–284.

⁴ Amirkhanov Kh. A. *Vostochnyi gravett ili gravettoidnye industrii Tsentral'noi i Vostochnoi Evropy // Vostochnyi Gravett*. Moscow, 1998. P. 15–34.

and Kostenki-Aleksandrovka groups. However, only Kostenki-Avdeev sites are considered monocultural in a strict sense. The excessive variability of the inventory of the rest of the gravettoid complexes, even in regard to the leading tools types, does not make it possible to develop a cultural periodization within the East-European community, which even G. P. Grigoryev refused to work out at the time⁵.

D. Yu. Nuzhnyi developed a two-stage periodization of the Ukrainian Gravettian sites by splitting them into the early stage of 30–26 ky BP (uncal) (Mezhigirtsy, Molodovo 5/IX–X, Oselivka 1/III–II, Voronovitsa 1/II) and the late stage of 25–22 ky BP (uncal) (Molodovo 5/VIII–VII, Korman 4/VII–VI, Molodovo 1/I, Voronovitsa 1/VI, and Babin 1). D. Yu. Nuzhnyi determined a distinction between the local complexes and the Kostenki-Avdeev and Gagarino ones, while also drawing similarities between the Ukrainian and the Pavlovian sites of Moravia and Khotylevo 2 on the Desna⁶ at the late stage. Yu. E. Demidenko⁷ also confirms a continuity gap between the two periods of penetration of the early and late Gravettian from Central to Eastern Europe.

M. V. Anikovich proposed that two variations of Eastern Gravettian could have been developing in parallel: “Willendorf-Kostenki-Zaraisk” and “Pavlovo-Khotylevo-Gagarino” within the rough approximation of 24–16 ky BP (uncal). Apart from that, he substantiated the coexistence of the Kostenki-Avdeev archaeological culture with the *Anosovka-Gmelinskaia* culture in the KBR (Kostenki 11/II, Kostenki 21/III, Kostenki 5/III)⁸. Kostenki 4/I, Kostenki 9 and Borshchevo 5/I belong to late gravettoid sites with pronounced Aurignacian features. According to M. V. Anikovich, Kostenki 8/II and Kostenki 4/II stand apart from other Gravettian complexes.

A. A. Sinitsyn made an attempt to assess the Gravettian systematics comprehensively, on the basis of the dominant elements that determine cultural identification. Kostenki 4/II, Kostenki 21/III, Borshchevo 5/I were recognized as the most definite Gravettian, according to accepted European practice (differentiation of blade blanks, presence of the Gravettian points and backed bladelets). Kostenki 11/2 least of all corresponded to the given criteria due to the presence of knives similar to those of Federmesser culture (Anosovka knives). According to A. A. Sinitsyn, there is no cultural continuity between the second layer of Kostenki 8 as the earliest Gravettian complex of a Western European or Mediterranean appearance (28–27 ky BP (uncal)) and the late Gravettian. A. A. Sinitsyn excluded Kostenki-Avdeev from the Gravettian sites since here specific Kostenki tools (shouldered points, Kostenki type knives) are prevalent over the generally Gravettian ones⁹. Thus, according to Sinitsyn, the Gravettian on the Middle Don is represented discretely — as a single early manifestation (Kostenki 8/II), followed by three local varia-

⁵ Grigorev G. P. Otnoshenie vostochnogo gravetena k Zapadu // Vostochnyi gravett. Moscow, 1998. P. 73–80.

⁶ Nuzhnyi D. Y. The industrial variability of the eastern Gravettian assemblages of Ukraine // Quartär. 2009. N 56. P. 159–174.

⁷ Demidenko Yu. E. Gravett Bol'shogo Severnogo Prichernomoria v kontekste verkhnego paleolita Vostochnoi Evropy.

⁸ Anikovich M. V. Dnepro-Donskaia istoriko-kul'turnaia oblast' okhotnikov na mamontov: ot “vostochnogo gravetta” k “vostochnomu epigravettu” // Vostochnyi gravett. Moscow, 1998. P. 35–66; Anikovich M. V., Popov V. V., Platonova N. I. Paleolit Kostenkovsko-Borshchevskogo raiona v kontekste verkhnego paleolita Evropy. St. Petersburg, 2008. P. 175.

⁹ Sinitsyn A. A. Gravett Kostenok v kontekste gravetta Vostochnoi Evropy // Problemy zaseleniia severo-zapada Vostochnoi Evropy v verkhnem i finalnom paleolite (kul'turno-istoricheskie protsessy). St. Petersburg, 2013. P. 4–32.

tions of the late Gravettian. As a result, the researcher rejects the concept of the Gravettian episode as a unifying event in the cultural history of Central and Eastern Europe since the concept is meaningless without respective eponymous complexes.

K. N. Gavrilov denotes both common and distinguishing features of the Gravettian complexes of Central and Eastern Europe. In particular, he draws attention to the proximity of the needle-shaped micropoints of the Kostenki 8/II complex to microblades with pointed ends, ventrally retouched along the edge opposite to the backed one, found in the 10th layer of Molodovo 5 and at the Dolní Vestonice I and II sites, as well as at the early Gravettian complexes of the Swabian Jura. In the Kostenki 8/II inventory, he emphasizes the presence of both Pavlovian elements (asymmetric trapezia) and Aurignacian ones (carinated scrapers, twisted profile segments).

According to Gavrilov, the sites' unity is combined with their internal cultural variability: in this case the Eastern Gravettian implies the Eastern European Gravettian in a broad sense. The researcher concludes that it is possible to "assume that the Eastern Gravettian was formed on the Russian Plain due to complex processes in the indigenous population culture combined with the influence or reciprocal contacts with the culture/population of Central Europe"¹⁰.

Thus, the KBR Gravettian sites are essential in understanding the European specifics of the Upper Paleolithic due to an unusual combination of their cultural diversity with a concentrated location within the local area of the Don¹¹.

The discussion on cultural differentiation of the Gravettian

Kostenki-Avdeevo culture has always been considered the meaningful core of the KBR Gravettian episode, while the rest of the complexes have been compared to it depending on the degree of their cultural proximity. Apparently, it is the inflexibility of such a construction that led to the fact that no detailed periodization has yet been created for the Kostenki Gravettian, given a fairly large number of artefacts.

This paper attempts to revise the KBR Gravettian classification in the light of new materials and new 14C-datings, which allows us to propose a periodization scheme. Classification of the KBR Gravettian stone industries by culturally separate groups is generally well established, although it needs some adjustment. From my point of view, five separate cultural units can be distinguished.

Telmanskaia complex (Kostenki 8/II)

The complex is represented by a single site — Kostenki 8/II (Telmanskaia site). The second cultural layer was identified in 1950 by A. N. Rogachev and studied in the 1950–1970s on an area of 530 m² ¹². The finds were discovered in a reduced humified soil with

¹⁰ Gavrilov K. N. Migratsiia, diffuziia, razvitie? K voprosu o proiskhozhdenii vostochnogo gravetta na Russkoi ravnine // *Stratum Plus*. 2016. No. 1. P. 45.

¹¹ Lisitsyn S. N. O variabelnosti gravettiiskogo epizoda nakanune poslednego lednikovogo maksimuma: vzgliad iz Kostenok // *Verkhni paleolit Severnoi Evrazii i Ameriki: pamiatniki, kul'tury, traditsii*. Ser. "Archaeologica Petropolitana". St. Petersburg, 2014. P. 179–186.

¹² Rogachev A. N. Mnogosloinnye stoianki Kostenkovsko-Borshevskogo raiona na Donu i problema razvitiia kul'tury v epokhu verkhnego paleolita na Russkoi ravnine // *Materialy i issledovaniia po arkheologii*

ferruginous and carbonate mineralization. Three clusters of finds could be identified. Two of them are of a round shape and have a hearth in the center, while the third one is oval and has three hearth structures (Fig. 1: A). These clusters are considered to be remnants of light ground dwellings¹³. Drawing on the analysis of the flint inventory ($n > 23,000$), L. M. Litovchenko (Chelidze) proposed to single out a separate *Kostenki-Telmanskaia* archaeological culture¹⁴. Recent research has proceeded with the study of the second cultural layer of this site. Another cluster of finds with two hearths was discovered on an area of 56 m², yielding a new collection of artefacts ($n > 4000$)¹⁵.

Kostenki 8/II inventory has a pronounced microlithoid character: the instruments are made on regular thin blades and microblades (Fig. 1: B). Backed points are prevalent, as well as burins of all types, including multiple burins, which could have been used as cores for microblades. Scrapers are few in number and are represented mainly by simple end scrapers on blades; there are several carinated ones, as well. Among common tools, there are miniature narrow microgravettes, which are intensely backed and have one or both asymmetrical ends ventrally retouched (needle-shaped points). No leaf-shaped points were found. This complex is peculiar due to the presence of 9 trapezia and 14 segments on microblades (see Fig. 1: B, 3–6, 35–36). Bone tools are represented by awls and lissoirs made of ribs and ivory. Among adornments, the following were found: cylindrical beads made of small bones ornamented by parallel cuts, round double-eyed plaques and various pendants of mammoth tusk.

Artefacts similar to Kostenki 8/II can be found among the early European Gravettian sites: Grotta Paglicci (layer 23a) in Italy, Geissenklösterle (layer Ic) in Germany, Abri Pataud (layer 5) in France, Willendorf 2 sites (layer 5) in Austria and Molodovo 5 (layers 9, 10) in Ukraine. Their 14C age is defined as 31–27 ky BP (uncal)¹⁶. According to M. V. Anikovich, layer II of Kostenki 8 was similar to the scarce artefacts found in layer IV of Kostenki 11 and to the Northern point of the same site, so they could be united into a separate *Anosovka-Telman* archaeological culture¹⁷. I believe the available data is insufficient for such unification, in terms of both stratigraphic and typological context.

СССР. 1957. No. 59. P. 47–56; Paleolit Kostenkovsko-Borshchevskogo raiona na Donu. 1879–1979: nekotorye itogi polevykh issledovanii / eds N. D. Praslov, A. N. Rogachev. Leningrad, 1982. P. 101–108.

¹³ Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P. 101.

¹⁴ Chelidze L. M. Telmanskaia stoianka i nekotorye voprosy razvitiia verkhnepaleoliticheskoi kul'tury v Vostochnoi Evrope. Avtoref. dis. ... kand. ist. nauk. Leningrad, 1968; Litovchenko L. M. Telmanskaia paleoliticheskaya stoianka (II kul'turnyi sloi) // Sovetskaya arheologiya. 1969. No. 3. P. 123.

¹⁵ Dudin A. E., Pustovalov A. Yu., Platonova N. I. Vtoroi kul'turnyi sloi stoianki Kostenki-8 (Telman-skaia): struktura, ob'ekty mikrostratigrafii // Vestnik NGU. Seriya: Istoriya, filologiya. 2016. Vol. 15. No. 3: Arkheologiya i etnografiya. P. 41–52.

¹⁶ Moreau L. Le Gravettien ancien d'Europe centrale revisité: mise au point et perspectives // L'anthropologie. 2012. Vol. 116. P. 609–638; Sinitsyn A. A. Gravett Kostenok v kontekste gravetta Vostochnoi Evropy // Problemy zaseleniya severo-zapada Vostochnoi Evropy v verkhnem i final'nom paleolite (kul'turno-istoricheskie protsessy). St. Petersburg, 2013. P. 13; Gavrillov K. N. Migratsiya, diffuziya, razvitiye? K voprosu o proiskhozhdenii vostochnogo gravetta na Russkoi ravnine // Stratum plus. 2016. No. 1. P. 29–50; Demidenko Yu. E. Gravett Bol'shogo Severnogo Prichernomoria v kontekste verkhnego paleolita Vostochnoi Evropy // Stratum plus. 2018. No. 1. P. 265–284.

¹⁷ Anikovich M. V., Popov V. V., Platonova N. I. Paleolit Kostenkovsko-Borshchevskogo raiona v kontekste verkhnego paleolita Evropy. St. Petersburg, 2008. P. 128.

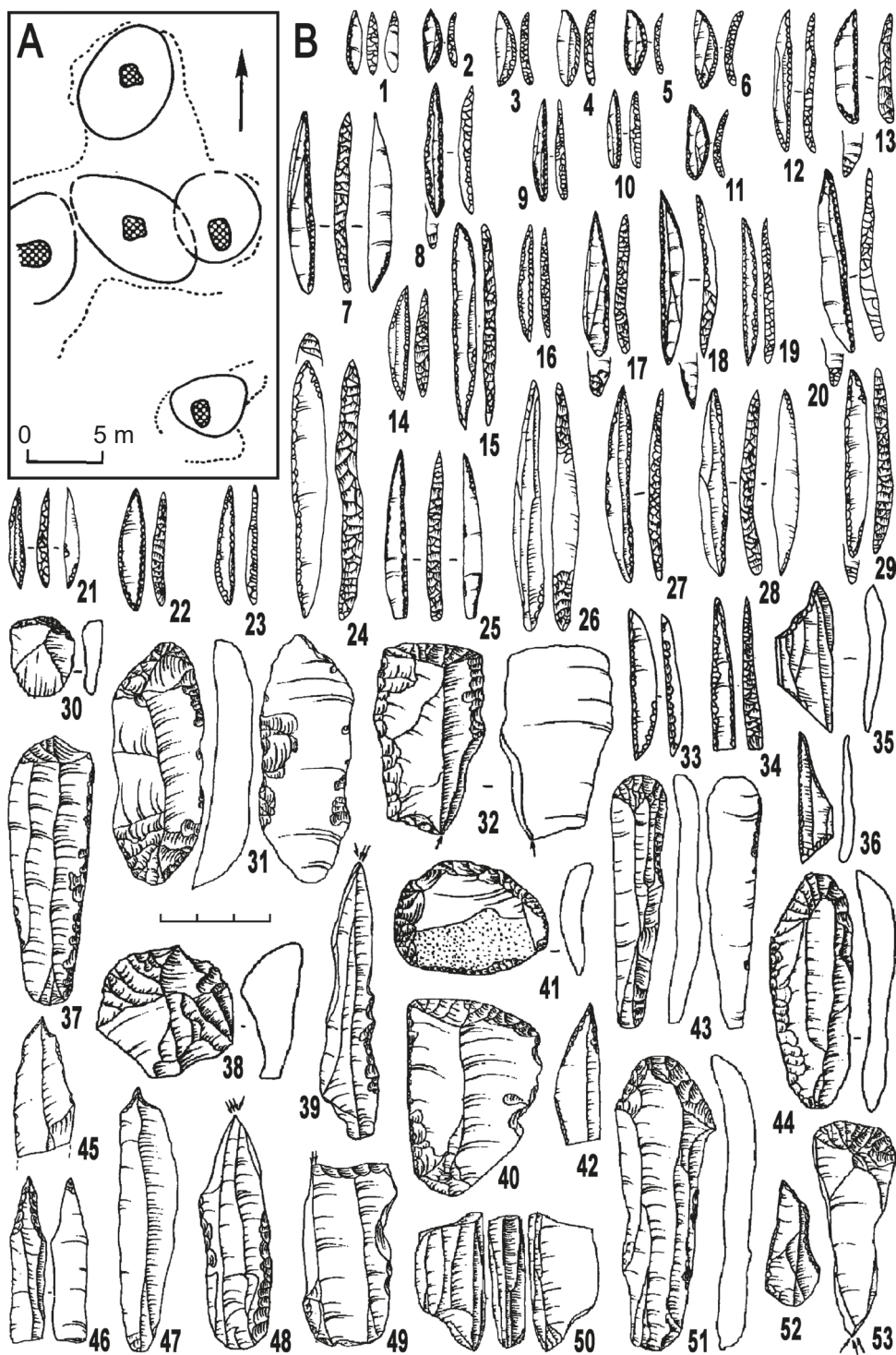


Fig. 1. Kostenki 8, cultural layer II:

A — contours of dwellings (from: [Sergin, 1988]); B — the stone assemblage [Sinitsyn, 2013]

Aleksandrovka complex (Kostenki 4, Borshchevo 5/I, Kostenki 9)

Kostenki 4 (Aleksandrovka) is a two-layer site with both cultural layers (and horizons, according to A. N. Rogachev) containing backed points. In 1927, the site was discovered by S. N. Zamyatnin and was further studied by A. N. Rogachev. The finds were deposited in the loess loam sediments on the first terrace. On the area of over 900 m² the remains of a settlement consisted of two (northern and southern) long-drawn objects with a number of hearths along the central axis parallel to each other were discovered. Two round objects with a firepit in the center were adjacent to the northern object and partially overlapping it. Subsequently, A. N. Rogachev attributed them to the dwellings (western and eastern) of the upper horizon (Fig. 2: A–B). Long objects with multiple hearths were, in turn, associated with the dwellings of the lower horizon. Both layers of Kostenki 4 with dwellings of various types merged along the strike¹⁸.

A. N. Rogachev divided the finds into horizons years after the completion of the excavation, therefore their purity is relative. It is evident when comparing published data. Given the varying size of the collections of the upper ($n \sim 14,500$) and lower ($n \sim 60,000$) cultural layers, the anomalous ratio of individual tool types is striking. For instance, the number of burins in a smaller inventory of the upper layer ($n = 260$) is half as much as their number in the lower layer ($n = 158$). On the contrary, the number of scrapers in the upper layer ($n = 76$), is three times lower compared to the lower one ($n = 212$). All hammer-stones and pestle-stones ($n = 43$), microblades and micropoints ($n = 404$), as well as cores on flakes ($n \sim 179$) are attributed to the upper layer, while blades and points on blades with a vertically retouched backed edge ($n = 2604$), as well as chisel tools ($n = 1210$) — to the lower layer.

The peculiarity of the toolkit in each of the Kostenki 4 layers is determined by variations in specific tool types. According to A. N. Rogachev, the upper layer includes micropoints with one straight backed edge and another semi-convex edge and ends ventrally retouched (see Fig. 2: B, 1–4). He compared these tools with the needle-shaped points from the second cultural layer of Kostenki 8. The second layer of Kostenki 4 includes the Gravettian points, “awl-shaped points” with a dorsally retouched sharp tip and bitruncated backed bladelets. Among the latter, there is a series ($n = 25$) of denticulated items (see Fig. 2: B, 17). It is evident that backed tools are clearly divided into cultural layers by the blank size (microblades and blades) and the end retouching techniques (ventral and dorsal).

In regard to a series of leaf-shaped points of the upper layer ($n = 191$), A. N. Rogachev specified a particular group of tools, in which the haft element was designed as a dihedral burin (“Aleksandrovka points” — see Fig. 2: B, 6, 11). Two of them are traced back as drawing knives¹⁹. M. N. Zheltova²⁰ determined that no more than ten artefacts could be attributed to the classical points of this type, not taking debitage into account. Concurrently, they are morphologically heterogeneous and multifunctional. At least two items were associated with the lower but not upper cultural layer of the site.

¹⁸ Rogachev A. N. Aleksandrovskoe poselenie drevnekamennogo veka u sela Kostenki na Donu // *Materialy i issledovaniia po arkheologii SSSR*. 1955. No. 45. P. 19–24.

¹⁹ Semenov S. A. Pervobytnaia tekhnika (opyt izucheniia drevneishikh orudii i izdelii po sledam raboty) // *Materialy i issledovaniia po arkheologii SSSR*. 1957. No. 54. P. 135.

²⁰ Zheltova M. N. Ostriia aleksandrovskogo tipa: kontekst, morfologiya, funktsiia // *Paleolit i Mezolit Vostochnoi Evropy. Sbornik statei v chest' 60-letii Kh. A. Amirkhanova*. Moscow, 2011. P. 226–234.

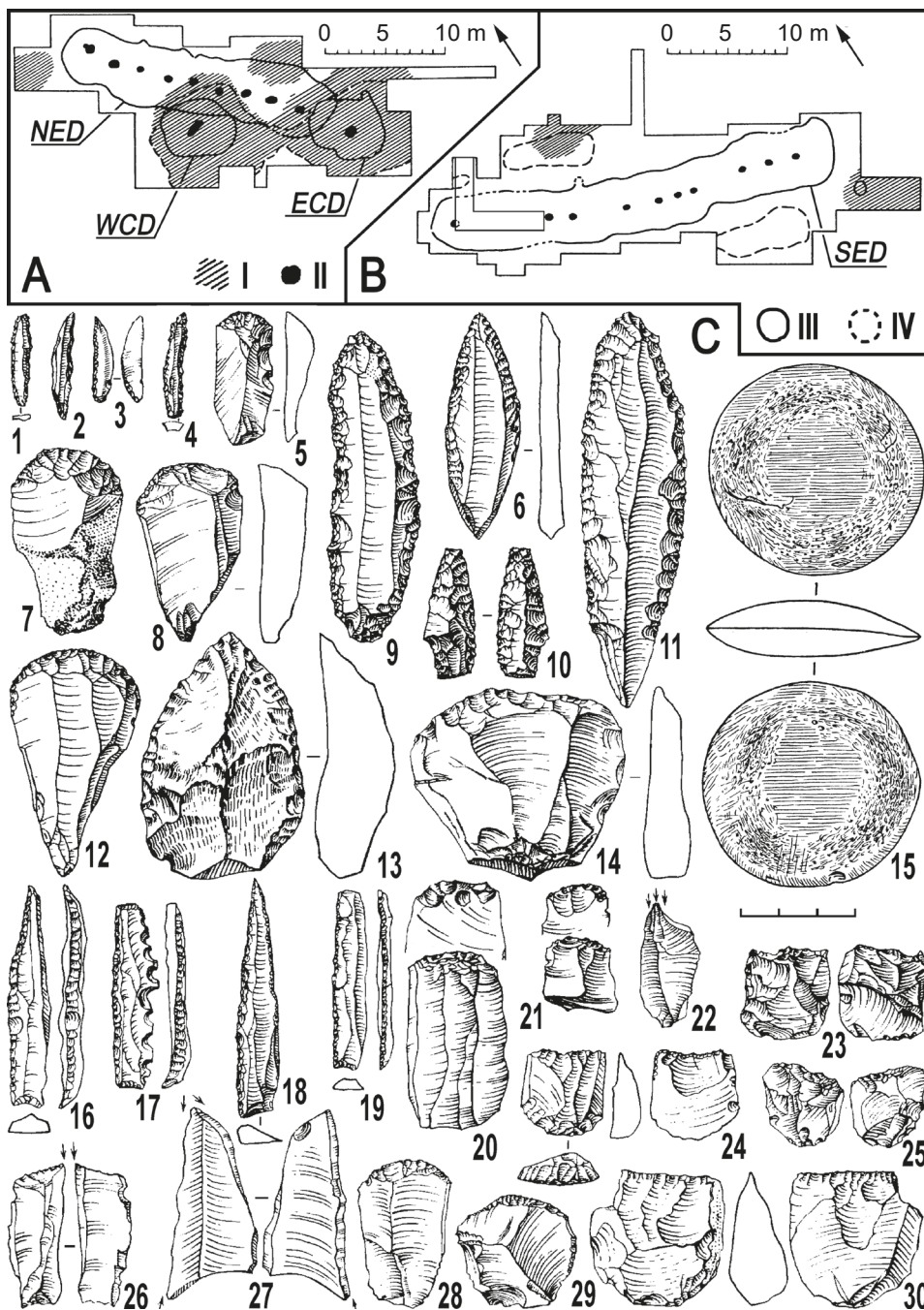


Fig. 2. Kostenki 4:

A — NED — north elongate dwelling (the lower cultural layer), WCD and ECD — west and east circular dwellings (the upper cultural layer); B — SED — south elongate dwelling (the lower cultural layer). I — extensions of the upper cultural layer; II — hearths; III — contours of dwellings; IV — finds accumulations; C — the stone assemblage: 1–15 — from the upper cultural layer; 16–30 — from the lower cultural layer [Rogachev, 1955]

Stone inventory of upper layer of Kostenki 4 can be distinguished from the lower one by the presence of bifacial points ($n = 4$). Possibly the most impressive item is a massive laurel-leaf biface 20 cm in length²¹. The other three are small subtriangular fragments of points or knives bearing typical cutting edge polishing traces. One of them is considered a shouldered point, however, its shape and retouching technique have little in common with the Eastern Gravettian points (see Fig. 2: B, 10).

It should be noted that by their proportions the Kostenki 4 points belong to thick bifaces, for example, contrary to the same Kostenki-Streletsky points, which show typical features of thin bifaces²². The morphologically perfect “solutrean” point of the Aleksandrovka site is represented by a single item, which indicates that bifaces as a whole are an alien element in that stone industry. It could be possibly explained by the fact that the site is located on the same cape as a Bronze Age settlement. Ceramics from this settlement is also included in the Kostenki 4 collection. Massive bifaces are most characteristic of the Aeneolithic or the Bronze Age. Faunal assemblage of Kostenki 4 includes bones of the Holocene animals (wild boar, corsac fox, beaver, red deer), embedded into the Paleolithic horizon as a result of later intrusions²³. Other peculiar features of the composition of the finds in Kostenki 4, for example, the extraordinary variety of stone raw materials noted by A. N. Rogachev, can also be explained by the stratigraphic proximity of cultural items of the Bronze Age and the Palaeolithic²⁴.

Finally, Kostenki 4/I materials can be distinguished by the presence of a series of polished objects made of soft stone. These include grinding slabs, quartzite grindstones, slate biconvex discs (see Fig. 2: B, 15), rectangular billets, “polyhedral” wands and bullet-shaped points. They are found mainly within round dwellings or nearby, in the northern oblong dwelling. One fragment of a polished tool and 17 slate flakes, possibly connected to the manufacturing of such tools, were found in the southern oblong dwelling, in which, as previously believed, only the lower layer artefacts were found²⁵.

Osseous inventory of Kostenki 4 includes awls, lissoirs, wands, points, a mammoth ivory disc. The adornments are represented by double-headed beads, an ivory ornamented fibula with a perforated head, a pendant made on tubular bone pieces and marl pendants. Works of art include four ornamented ivory items, including a schematic anthropomorphic figurine with a dotted pattern, seven schematic zoomorphic marl figurines, an animal head and a fragment of limestone face figurine. Most of these artefacts belong to the upper cultural layer²⁶.

Description of the Kostenki 4 materials shows that the probable intrusion of the Bronze Age artefacts, as well as the composition of the collection made a certain impact on A. N. Rogachev’s interpretation of the results of his own work at the Aleksandrovka

²¹ Rogachev A. N. Aleksandrovskoe poselenie drevnekamennogo veka u sela Kostenki na Donu. P. 52.

²² Giryа E. Yu. Tekhnologicheskii analiz kamennykh industrii. Metodika mikro-makroanaliza drevnikh orudii truda. St. Petersburg, 1997. P. 158.

²³ Zheltova M. N., Burova N. D. Sopostavlenie zhilykh kompleksov Kostenok 4 na osnove izuchenii osteologicheskikh kollektsii // Stratum plus. 2014. No. 1. P. 111–145.

²⁴ Rogachev A. N. Aleksandrovskoe poselenie drevnekamennogo veka u sela Kostenki na Donu. P. 37.

²⁵ Zheltova M. N.: 1) Mesto kamennykh industrii Kostenok 4 v kontekste verkhnego paleolita Evropy // Problemy zaseleniia severo-zapada Vostochnoi Evropy v verkhnem i final’nom paleolite (kul’turno-istoricheskie protsessy). St. Petersburg, 2013. P. 86–109; 2) Kostenki 4: opyt rekonstruktsii uchastka kul’turnogo sloia // Arkheologicheskie vesti. 2014. No. 20. P. 55–68.

²⁶ Rogachev A. N. Aleksandrovskoe poselenie drevnekamennogo veka u sela Kostenki na Donu. P. 78–88, 146–148.

site²⁷. It is evident that dividing the collection into two typologically opposite groups of inventory based on certain culture-determining categories (micro- and macroblanks, core types, hammer-stones and pestle-stones, points and bifaces, chisels, etc.) is outdated.

Ultimately, separating these two cultural layers is possible not through a classification of finds, but through understanding how these artefact types are connected to various types of dwellings — long, with multiple hearths, and round, with a single firepit. As M. N. Zheltova demonstrates in her work²⁸, neither does establishing such a connection result in a conclusive distinction, nor does it allow to associate one or the other inventory with only one type of dwelling. It is important to note that round dwellings with a single hearth are widespread throughout the Stone Age, while the elongated ones are unique in their size or design. The dimensions of the long southern (32 × 5.5 m) and long northern (23 × 5.5 m) dwellings of Kostenki 4 imply the need to install supports for the roof. However, A. N. Rogachev recorded only four sufficiently deep (15–30 cm) holes in the floor of the southern dwelling, which would have been suitable for supporting pillars²⁹; there were no such holes found in the northern dwelling. Both in the elongated and round dwellings, numerous shallow holes were found near the hearth zone and were quite similar. Apparently, understanding the problems associated with the reconstruction of the oblong dwellings, the researcher of this site suggested that they consisted of three joint sections, each with its own roof. Nonetheless, by studying planigraphy, M. N. Zheltova³⁰ drew a conclusion that the eastern round dwelling of the upper layer was either another section of the northern oblong one or built on its ruins. Thus, the only western round dwelling stands out from the group of dwellings, due to the fact that it is located sideways, outside the central axis of the long northern dwelling (see Fig. 2: A).

I believe it would be more reasonable to regard the Aleksandrovka site as a settlement structure with traces of multiple visits. In the field practice of the Stone Age, determining contours of constructions within settlements with multiple hearths poses a challenge. For instance, in the case of Magdalenian settlements, which were thoroughly excavated, it is extremely difficult to separate such palimpsests containing remains of several light dwellings at once³¹. Partial overlapping of dwellings results in complex structures with multiple hearths. Such dwelling sites stretch along the edge of a coastal terrace for dozens of meters,

²⁷ Rogachev A. N.: 1) Paleoliticheskoe poselenie Kostenki IV // Kratkie soobshcheniia instituta istorii materialnoi kul'tury. 1940. Iss. IV. P. 36–41; 2) Aleksandrovskoe poselenie drevnekamennogo veka u sela Kostenki na Donu. P. 152–155.

²⁸ Zheltova M. N.: 1) Mesto kamennykh industrii Kostenok 4 v kontekste verkhnego paleolita Evropy // Problemy zaseleniia severo-zapada Vostochnoi Evropy v verkhnem i final'nom paleolite (kul'turno-istoricheskie protsessy). P. 86–109; 2) Kostenki 4: opyt rekonstruktsii uchastka kul'turnogo sloia. P. 55–68; 3) Zheltova M. N. Planigraficheskii analiz zhilykh kompleksov stoianki Kostenki 4. Avtoref. dis. ... kand. ist. nauk. St. Petersburg, 2015; 4) Problema khronologicheskogo i kul'turnogo edinstva materialov nekotorykh kostenkovskikh stoianok i vozmozhnye metody ee resheniia // Estestvennonauchnye metody v izuchenii i sokhranении pamiatnikov Kostenkovsko-Borshchevskogo arkhologicheskogo raiona. Voronezh, 2017. P. 124–139.

²⁹ Rogachev A. N. Aleksandrovskoe poselenie drevnekamennogo veka u sela Kostenki na Donu. P. 89–115.

³⁰ Zheltova M. N. Kostenki-4: vzaimoraspolzhenie ob'ektov v prostranstve i vremeni (analiz kul'turnogo sloia) // Arkheologiya, etnografiia i antropologiya Evrazii. 2009. No. 2(38). P. 19–27.

³¹ Leesch D., Bullinger J. Identifying dwellings in Upper Palaeolithic open-air sites: the Magdalenian site at Monruz and its contribution to analysing palimpsests // A mind set on flint. Studies in honour of Dick Stapert (Groningen Archaeological Studies 16) / eds M. Niekus, R. Barton, M. Street, T. Terberger. Groningen, 2012. P. 165–181.

which is consistent with the idea that the KBR Gravettian settlements are connected to the coastal terrains associated with the flood activity of the Don in the Pleistocene³².

The case of Kostenki 4 is not unique: according to I. I. Razgildeeva³³, the Palaeolithic site of Studenoe 2 in the Transbaikal region demonstrates a similar overlapping of dwellings together with an adjacent household zone. Similar to Kostenki 4, a construction stretching parallel to the river bank was found. Previously it had been considered as an elongated dwelling space with 6 hearths³⁴. However, a planigraphic analysis showed that the artefact assemblages were associated with separate hearths that had various asynchronous ¹⁴C-datings.

Thus, stratigraphically and planigraphically merged cultural items of Kostenki 4 belong to a settlement, which contains artefacts of multiple habitation periods of a single culturally unified population. In 1959, at the northern point of the site, excavation led by N. K. Anisutkin revealed a horizon of finds with materials from the “lower” cultural layer of Kostenki 4, which included tools characteristic of the “upper” layer: micropoints, microblades with fine retouching and secondary end cores³⁵. Types of tools characteristic of both cultural layers of the Aleksandrovka site were identified in the inventory of Borshevo 5/I and Kostenki 9³⁶, where they were also combined together.

Borshchevo 5/I. The site of Borshchevo 5 (studied by the author since 1998) belongs to the ravine cape of the second terrace. The upper Gravettian layer of Borshchevo 5 has bedding levels (Ia and Ib), corresponding to two paleosoils, which are located in the loess loam strata. Layer Ib is deposited in situ, while the overlying Ia shows signs of dislocation along the slope. Approximately 140 m² were uncovered. A circular accumulation of finds was discovered in the central area of the cape. With a diameter of 5.5 m, it has the remains of an open hearth in the center, which can be interpreted as the remnants of a light dwelling (Fig. 3: A).

The stone inventory of the upper cultural layer (n > 3000) is represented by finds from horizons Ia and Ib, which are comparable in volume. Almost all the artefacts are concentrated within the dwelling, with only single finds outside of it. The composition of the finds of both horizons is identical down to the percentage of the main tool types³⁷. The industry is lamellar, but not microlithoid (Fig. 3: B). Among the secondary treated tools, the following types are prevalent: backed microblades with untreated or transversely ventrally retouched ends, as well as micropoints. The latter are represented by microgravettes and flechettes with a trimmed haft or — less often — tip (see Fig. 3: B, 8–10, 14, 19).

³² Lisitsyn S. N. Epokha gravetta v Kostenkakh: kulturnaia istoriia i paleolandshaft // Puti evoliutsionnoi geografii. Moscow, 2016. P. 687–692.

³³ Razgildeeva I. I. Planigrafiiia shestiochazhnogo kompleksa pozdnepaleoliticheskogo poseleniia Studenoe-2 v Zabaikal'e // Stratum plus. 2016. No. 1. P. 243–263.

³⁴ Konstantinov A. M. Drevnie zhilishcha Zabaikal'ia (paleolit, mezolit). Novosibirsk, 2001. P. 96–110.

³⁵ Anisutkin N. K. Severnyi punkt stoianki Kostenki 4 i kul'turno-khronologicheskaiia interpretatsiia pamiatnika // Kostenki i ranniia pora verkhnego paleolita Evrazii: obshchee i lokal'noe. Materialy mezhdunarodnoi konferentsii, posviashchennoi 125-letiiu otkrytiia paleolita v Kostenkakh. St. Petersburg, 2006. P. 101–113.

³⁶ Lisitsyn S. N.: 1) Gravettiiskii kompleks stoianki Borshchevo 5 v Kostenkovsko-Borshchevskom raione na Donu // Paleolit i Mezolit Vostochnoi Evropy. Moscow, 2011. P. 204–225; 2) The late Gravettian of Borshevo 5 in the context of the Kostenki-Borshevo sites (Don basin, Russia) // Quaternary International. Vol. 359–360. P. 372–383.

³⁷ Lisitsyn S. N. The late Gravettian of Borshchevo 5 in the context of the Kostenki-Borshevo sites (Don Basin, Russia). P. 372–383.

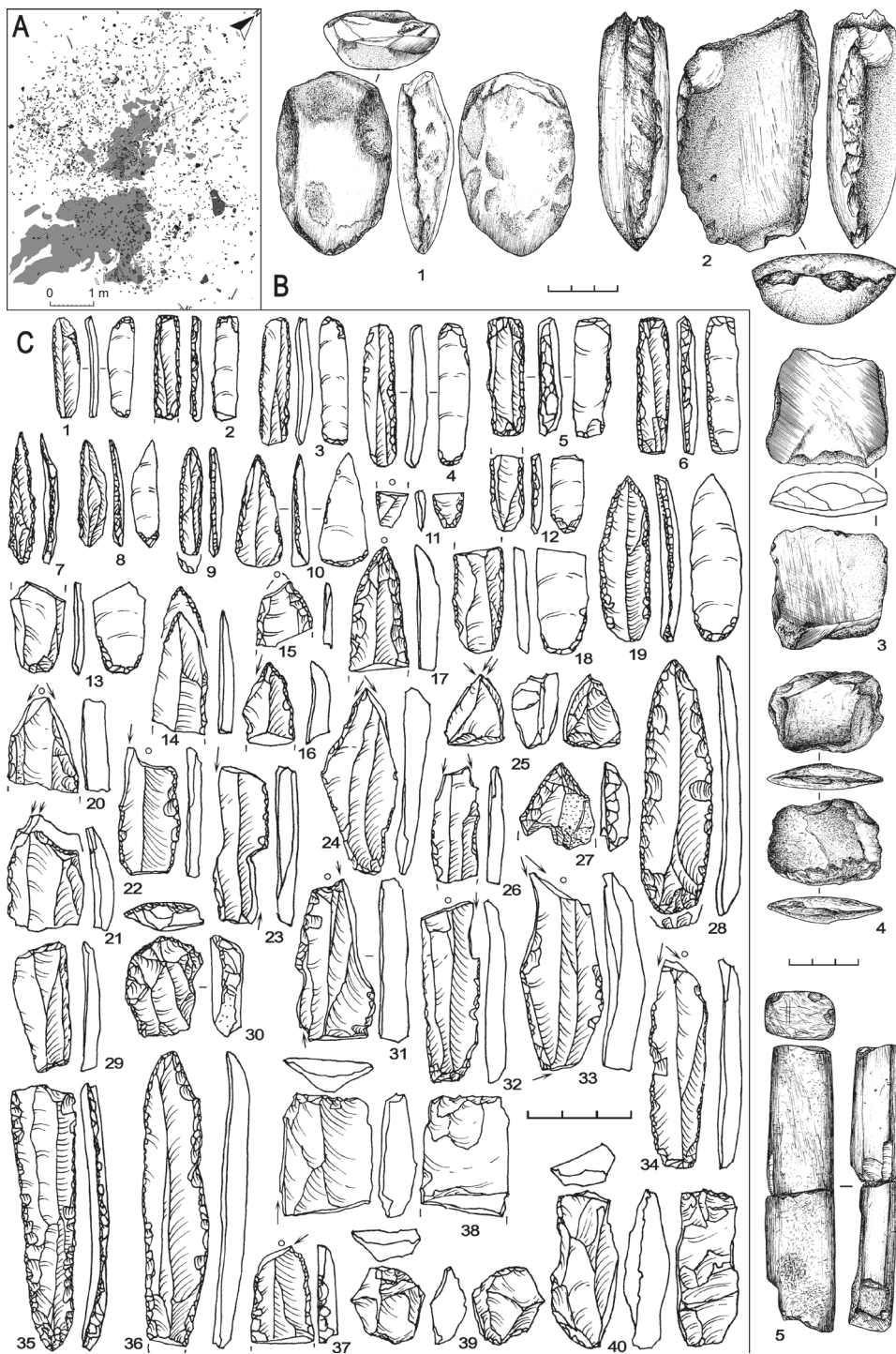


Fig. 3. Borshchevo 5, the upper cultural layer:
 A — accumulation of finds in the dwelling; B — the polished pieces; C — the stone assemblage (drawing by the author)

Burins, mainly angular and dihedral ones, are predominant over scrapers. Among other numerous tool types are chisels and massive leaf-shaped points on blades with a retouched contour, sometimes combined with burins.

The complex is peculiar due to the presence of 5 artefacts treated with grinding. An axe and an adze with hammered chopping edge (see Fig. 3: B, 2–3) were made of silicified dolomite. A heavily damaged biconvex disc (Fig. 3: B, 4) and a wand, quadrangular in cross-section and, judging by the traces, used as an anvil with two applied parts (see Fig. 3: B, 5) were made of slate. Another artefact, made of a concave-convex quartzite oval pebble, was treated with pecking and polished (see Fig. 3: B, 1). Ground tools are generally similar to those found in Kostenki 4. Ivory tools are scarce: mattocks made of a mammoth rib and tusk, simple awls. Bullet-shaped points were also made of a tusk, as well as lissoirs, double-headed beads, two daggers and an anthropomorphic figurine, which is morphologically similar to the Kostenki 4 one³⁸.

Kostenki 9. Kostenki 9 site, discovered by P.P. Efimenko in 1937, belongs to the cape of the second terrace of the Don, not particularly prominent in the relief. In 1959, A. N. Rogachev discovered a lens of cultural remains with a closed eastern contour which were concentrated around a cindery hearth in the center (fig. 4: A). It was interpreted as an aboveground dwelling with a diameter of 5–6 m. In 2006–2007, A. V. Popov and A. Yu. Pustovalov uncovered another lens of a cultural layer, belonging to the upper part of loess loam and obtained a small collection of artefacts, including a polished slate disc — fully analogous to the finds from Kostenki 4 and Borshchevo 5 (Fig. 4: B, 24)³⁹.

The main collection of the 1937 and 1959 excavations (n ~ 3000) is published. Almost all of the tools of Kostenki 9 are made on blades and microblades (see Fig. 4: B), with the exception of a few scrapers on lamellar flakes. The main burin types are angular and dihedral, to a lesser extent the ones on truncation. A series of chisels is found in the collection. Large leaf-shaped points with a marginal retouch along the contour stand out in the assemblage. Backed points are microgravettes made on microblades with a ventrally retouched haft, as well as flechettes similar to the Borshchevo ones. Backed microblades have the shape of elongated rectangles, predominantly with a ventral trimming on the ends.

Apart from the flint artefacts, the assemblage includes fragments of slate tools with polishing traces, two cone-shaped slate wands, subquadrangular in cross-section polished over the entire surface (see Fig. 4: B, 19–22), as well as a marl zoomorphic piece of unclear morphology (see Fig. 4: B, 23). Osseous tools are scarce: a lissoir made of a mammoth rib and two fragmented ivory wands⁴⁰.

Cultural remains of Kostenki 9 are typologically similar to Borshchevo 5 and Kostenki 4, which allows us to assume that they belong to the same culture. Another similar trait is the presence of artefacts made of soft stone and treated by polishing (especially biconvex discs). The absence of the Eastern Gravettian markers, that is a series of shouldered points and Kostenki type knives, is also indicative of this.

I believe it is justified to compare sites like Borshchevo 5/I, Kostenki 9 and Kostenki 4/I-II with the Pavlovian culture of the Central Europe, and in particular with the most

³⁸ Lisitsyn S. N. Gravettiiskaia statuetka iz bivnia mamonta so stoianki Borshchevo-5 // V (XXI) Vsesroisskii arkheologicheskii s'ezd. Barnaul, 2017. P. 627–628.

³⁹ The author is grateful to A. Yu. Pustovalov for the opportunity to study materials from the test pits of 2006–2007.

⁴⁰ Litouchanka L. M. Paleolitichnaia staianka Biruchy Log (Kastsenki IX) // Vestsi AN BSSR. Ser. gramad. navuk. 1966. № 3. P. 110–115.

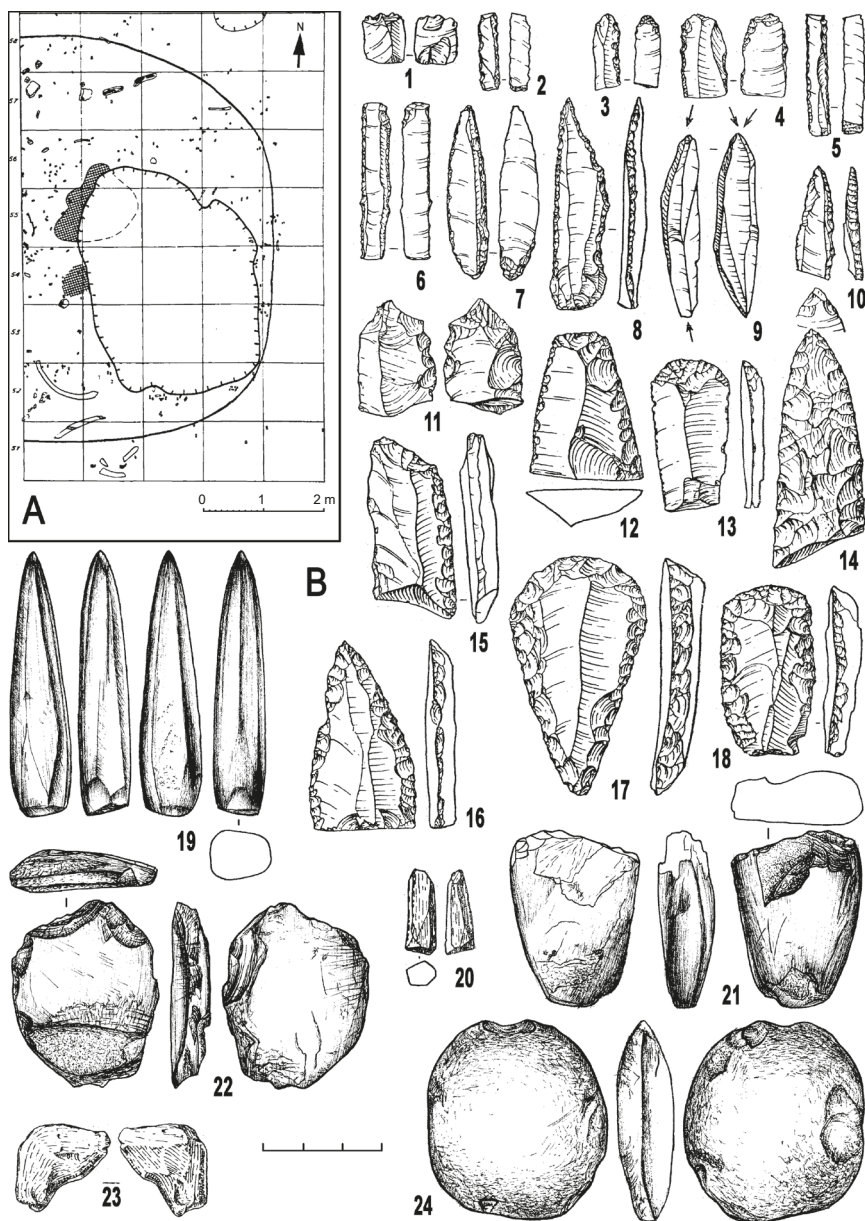


Fig. 4. Kostenki 9:

A — the dwelling in the excavations of A. N. Rogachev, 1959; B — the stone assemblage [Paleolit Kostenkovsko-Borshchevskogo raiona na Donu..., 1982 with additions]

chronologically recent complex that dates to 25,000–22,000 years BP, i.e. with the upper cultural layer of Milovice 1 site in Moravia⁴¹.

⁴¹ Milovice, site of the mammoth people below the Pavlov hills: the question of mammoth bone structures // Studies in Anthropology, Palaeoethnology and Quaternary Geology. Vol. 27, ns 19. Brno, 2009. P. 161–211.

Milovice has a full range of artefacts characteristic of Borshchevo 5/I, Kostenki 4 and Kostenki 9, given its greater typological variety. Other late Pavlovian sites (26,000–25,000 ky BP (uncal)), which are closer geographically, albeit not so remarkable, can also provide analogies to the Milovice finds. Among these are the Gravettian layer of the Kašov site in Slovakia⁴² and the Jakšice 2 site in Poland⁴³, 3–4 layers of the Grub-Kranwetberg site in Austria⁴⁴ and, possibly, other undated sites of the late Pavlovian⁴⁵.

Polishing in production of stone tools is specific to the Aleksandrovka cultural complex, and some similarities in that respect can be drawn only with the Pavlovian sites⁴⁶. Generally speaking, production of polished tools is a differentiating factor of the Moravian Gravettian sites (Pavlov, Dolní Vestonice, Przhedmost, Trenčianske Bohuslavice), which distinguishes Pavlovian sites from the rest of the Gravettian complexes. Pavlov 1⁴⁷ has the most exhaustive collection of such tools. Upon obtaining new 14C-datings the eponymous Pavlovian site is considered a settlement of recurrent habitation — from the late Aurignacian (31–30 ky BP (uncal)) to the early (28–27 ky BP (uncal)) and middle Gravettian (26–25 ky BP (uncal))⁴⁸ inclusively. In this case, the existence of sites with polished tools in the KBR (25–24 ky BP (uncal)) indicates the expansion of the developed Pavlovian to the Russian Plain in the period immediately preceding the late Gravettian migration of the Willendorf-Kostenki population from the Danube (23–21 ky BP (uncal)).

Kostenki-Avdeev (Willendorf-Kostenki) complex (Kostenki 1/I, Kostenki 13, Kostenki 14/I, Kostenki 18)

All three sites belong to the strata of the second terrace of the Pokrovsky ravine. Traces of long-term settlement were examined, that is, remains of hearths, pits, and dwellings. Apart from that, a child's burial was found in Kostenki 18. The upper cultural layer of Kostenki 1 (Polyakov's site) remains the most abundant of the studied settlements, which have been studied for over 80 years⁴⁹ on a total area exceeding a 1000 m². There were found the remains of two oval dwelling complexes, parallel to each other, each consisting of numerous hearths located along the central line, as well as pits and dugouts along the outer contour (Fig. 5: A). The material culture of the Kostenki-Adeev sites has been

⁴² Novak M. Gravettian occupation in the lower layer of Kašov I // The Gravettian along the Danube. Brno, 2004. P.217–242. (Dolnověstonické studie, 11).

⁴³ A Gravettian site in southern Poland: Jaksice II. Krakow, 2015. P.33–52.

⁴⁴ Nigst P.N., Antl-Weiser W. Les structures d'occupation gravettiennes en Europe centrale: le cas de Grub/Kranawetberg, Autriche // L'Anthropologie. 2012. Vol. 116, iss. 5. P.639–664.

⁴⁵ Svoboda J. A. The Gravettian on the Middle Danube // PALEO. 2007. No. 19. P.203–220; Polanska M., Hromádova B. Réflexion autour des industries gravettiennes “post-pavloviennes” de Slovaquie occidentale et de Moravie (25,500/24,500–22,000 BP non calibré) // Forgotten times and spaces: New perspectives in paleoanthropological, paleoetnological and archeological studies. Brno, 2015. P.132–154.

⁴⁶ Zheltova M.N., Lisitsyn S.N. Shlifovannyye izdeliia iz kamnia v paleolite Kostenok // V (XXI) Vse-rossiiskii arkhéologicheskii siezd. Barnaul, 2017. P.368–369.

⁴⁷ Skrlida P. The Pavlovian lithic technologies // Pavlov I — Northwest, The Dolní Věstonice Studies. Vol. 4 / ed. J.Svoboda. Brno, 1997. P.313–372.

⁴⁸ Svoboda J., Novak M., Sazulova S., Demek J. Pavlov I: A large Gravettian site in space and time // Quaternary International, 2016. Vol. 406, pt. A. P.95–105.

⁴⁹ Efimenko P.P. Kostenki I. Moscow; Leningrad, 1958; Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P.42–62; Anikovich M. V., Popov V. V., Platonova N. I. Paleolit Kostenkovsko-Borshchevskogo raiona v kontekste verkhnego paleolita Evropy. St. Petersburg, 2008. P.176–192.

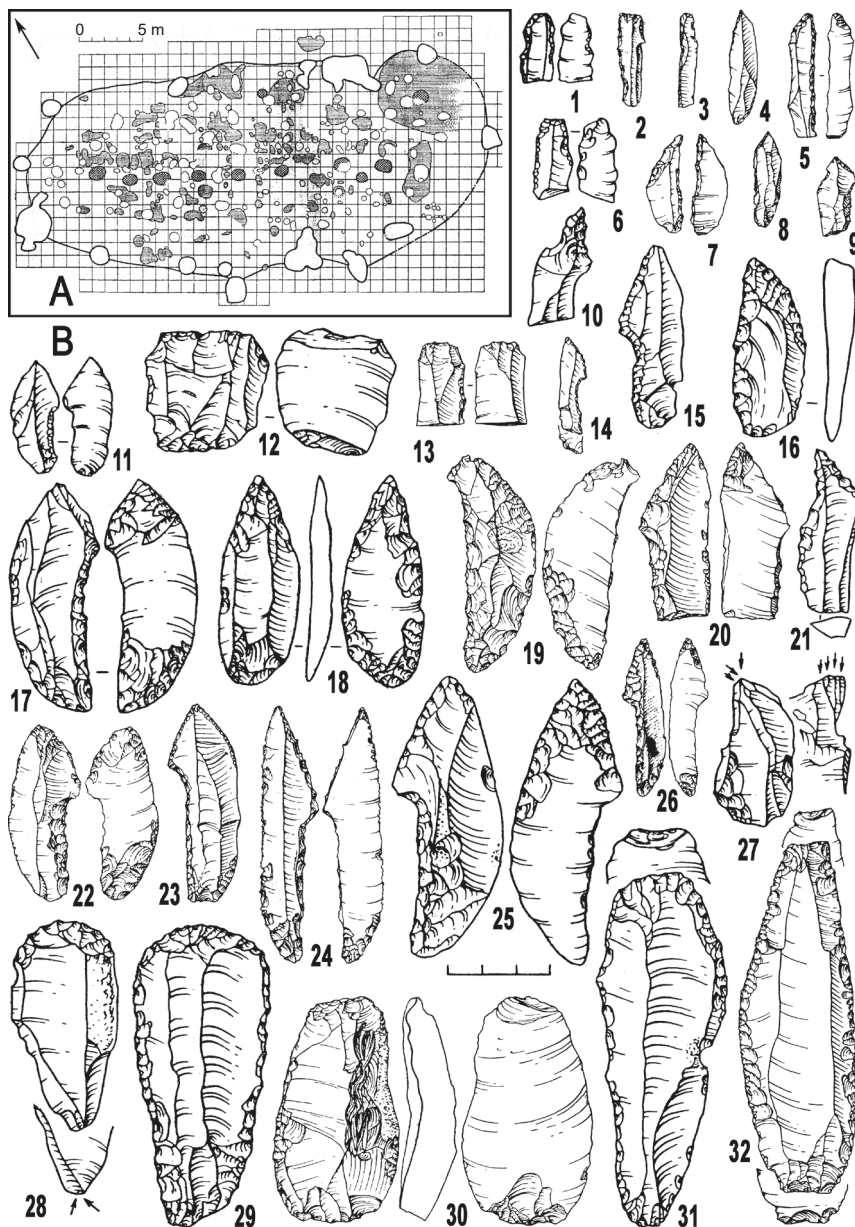


Fig. 5. Kostenki 1, the upper cultural layer:
 A — the first dwelling complex [Efimenko, 1958]; B — stone assemblage [Paleolit
 Kostenkovsko-Borshchevskogo raiona na Donu..., 1982]

described in sufficient detail. Therefore, we can confine ourselves to a brief description of the main parameters of the inventory (see Fig. 5: B).

Tools were made on lamellar blanks, varying from massive ones to miniature microblades. The toolkit can be distinguished by the combination of three tool types: shouldered points, in which the side notch equals $2/3$ of the length (both larger and smaller

types), Kostenki type knives, and backed microblades — rectangles with transversely retouched ends (dorsally and less frequently ventrally)⁵⁰. Bone and ivory inventory is extremely abundant and manifold.

The most characteristic are rib spatulas with anthropomorphic heads, ivory mattocks, various points. Adornments are represented by ornamented diadems, pendants, fibulas⁵¹. Objects of art include canonical female figurines made of ivory and marl, as well as zoomorphic figurines.

Anosovka complex

(Kostenki 11/II, Kostenki 21/III — dwelling complexes)

Kostenki 11 site (Anosovka 2) was discovered by A. N. Rogachev in 1951. It has been intermittently excavated to the present day due to research of Mezin type bone dwellings in the upper cultural layer⁵². The site is located on the ravine cape of the second terrace.

The second cultural layer has been predominantly examined by testpitting. It is deposited in the middle part of the loess loam and lies in separate clusters. Remains of two dwellings were partially studied (Fig. 6: A). The remains of the southern dwelling are an oval lens of 12 × 6.5 m filled with bone char and ash. Inside the dwelling two deepened firepits and ~13,500 artefacts were discovered. The northern dwelling was 6 × 7 m in size, but, in contrast to the southern one, did not contain ash-carbon mass. The collection from the northern dwelling (partially excavated) amounts to ~ 3000 items. The total number of artefacts from Kostenki 11/II comprises ~20,000 items, with 1000 tools having a secondary treatment⁵³. Blades with a truncated dorsally retouched end, with a frequent contour retouching along the edges, are prevalent in the toolkit (Fig. 6: B, 37–40). Predominance of burins on retouched truncation is a particular feature of this complex. Scrapers are small in numbers and inexpressive; there are also individual cases of treated two-side leaf-shaped points and scrapers of different morphology.

A series of small backed lanceolate points with either dorsal straight or arcuate truncations on one and less often both ends (Anosovka points) gives a peculiarity to the complex. Another peculiarity is the small tool size (up to ~3 cm) and the blank type: they are made on shortened sub-triangular bladelets and lamellar flakes (Fig. 6: B, 1–17). Their

⁵⁰ Lisitsyn S. N. Mikroplastinchaty inventar' verkhnego sloia Kostenok 1 i nekotorye problemy razvitiia mikroorudii v verkhnem paleolite Russkoi ravniny Evropy // Vostochnyi Gravett. Moscow, 1998. P. 299–308.

⁵¹ Gromadova B. Ispolzovanie syria iz kosti, bivnia i roga na stoiankakh kostenkovsko-avdeevskoi kul'tury (vostochnyi gravett). Avtoref. dis. ... kand. ist. nauk. Moscow, 2012.

⁵² Rogachev A. N.: 1) Mnogosloinye stoianki Kostenkovsko-Borshevskogo raiona na Donu i problema razvitiia kul'tury v epokhu verkhnego paleolita na Russkoi ravnine. P. 9–134; 2) Anosovka II — novaia mnogosloinaia stoianka v Kostenkakh // Kratkie soobshcheniia Instituta arkheologii. 1961. Iss. 82. P. 86–96; Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P. 125–128; Popov V. V., Pustovalov A. Yu. Poselenie 2-go kul'turnogo sloia stoianki Kostenki 11 (Anosovka 2) // Arkheologicheskie pamiatniki basseina Dona. Voronezh, 2004. P. 3–8; Fediunin I. V. Kamennyi inventar' pervogo kul'turnogo sloia stoianki Kostenki 11 v svete novykh issledovaniy i nekotorye problemy verkhnego paleolita Kostenkovsko-Borshchevskogo raiona // Arkheologicheskie vesti. 2017, iss. 23. P. 19–32.

⁵³ Popov V. V.: 1) Analiz kremnevoogo inventaria stoianki Kostenki 11 (II kul'turnyi sloi) // Drevnie pamiatniki na territorii Vostochnoi Evropy. Izvestiia VGPI. Vol. 227. Voronezh, 1983. P. 5–13; 2) Razvitie pozdnepleisticheskoi kul'tury Vostochnoi Evropy po materialam mnogosloinnoi stoianki Kostenki 11. Avtoref. dis. ... kand. ist. nauk. Leningrad, 1989; Popov V. V., Pustovalov A. Yu. Poselenie 2-go kul'turnogo sloia stoianki Kostenki 11 (Anosovka 2). P. 3–8.

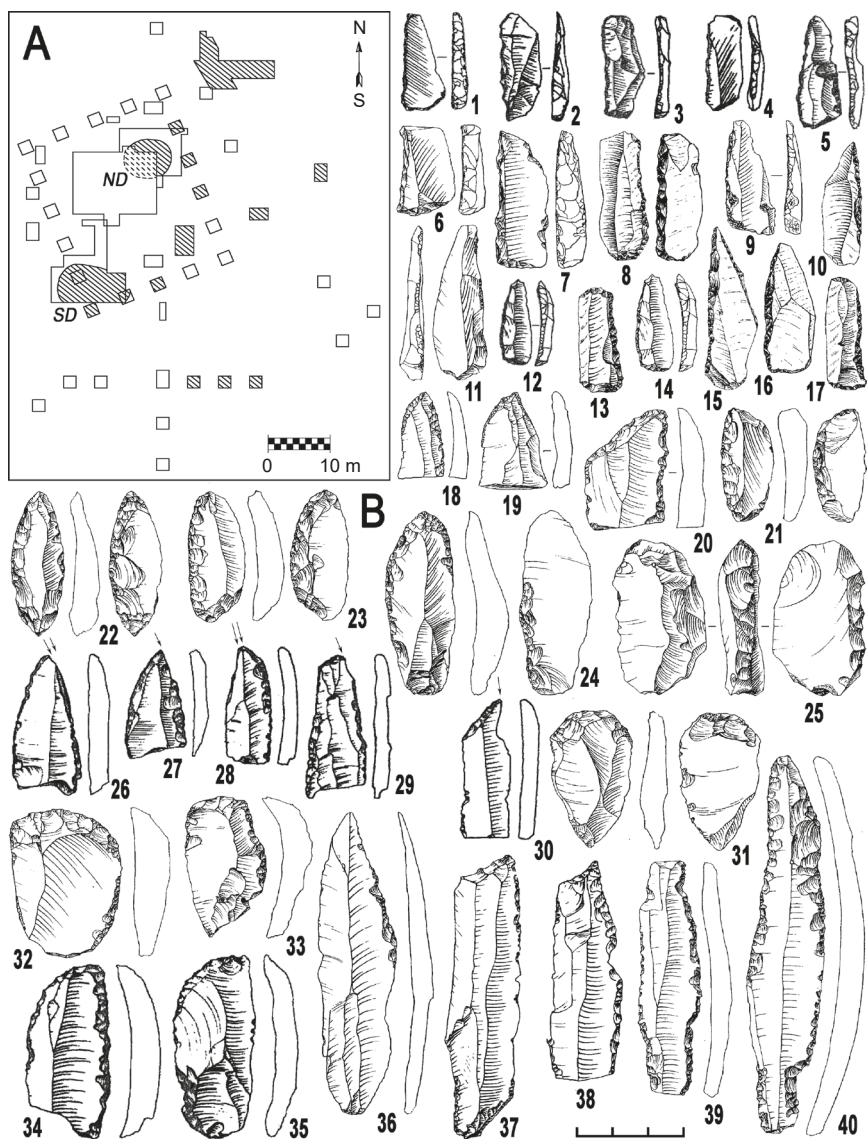


Fig. 6. Kostenki 11, the second cultural layer:

A — the excavations and testpits scheme. Areas of the cultural remains spread are hatched. ND — the north dwelling, SD — the south dwelling; B — the stone assemblage [Sinitsyn, 2013; Popov & Pustovalov, 2004]

dimensions are caused not by the blank standardization, but by an intense edge backing combined with truncation of the point ends. Actually, such tools should be attributed to geometric microliths.

Bone artefacts are represented by two points with heads which resemble animal faces. Kostenki 11/II complex also features a number of art objects, namely, a series of miniature marl figurines (over 100 items) with a flattened base, some of which are quite recognizable (mammoth, woolly rhinoceros, bison).

The complex does not have comprehensive analogies in the Gravettian industries, but in some aspects, it is similar to various East European sites. Zoomorphic marl figurines in KBR sites resemble Kostenki 1/I, Kostenki 4, Kostenki 9⁵⁴, while backed tools and tools with truncated ends remind of Kostenki 21/III, as well as Pushkari 1 and Klyussi in the Desna region⁵⁵. A specific feature of Kostenki 11/II inventory is the lack of signs indicating microblade blank production combined with mass production of microliths. By this criterion, Anosovka complex is similar to the Byki 1 and Byki 7/I-Ia sites in the Seym area with their triangular microliths (the beginning of the late stage of the Upper Palaeolithic, 17000–15000 yr uncal BP). It should be noted that N. B. Akhmetgaleyeva⁵⁶ attributes this industry not to the Gravettian, but to the Magdalenian cultural cluster. According to the combination of features, the inventory of Anosovka corresponds most fully to materials of Kostenki 21/III. However, surprisingly, these parallels are limited only to some local areas of the latter site and are not represented in others.

Kostenki 21 (Gmelinskaia encampment) is a site discovered by N. D. Praslov in 1956 on the first terrace of the Don. Total area uncovered in 1950–70s. exceeds 500 m². Within the terrace composed of loess-like loams, three cultural layers were revealed, of which the best studied one is the lower one, connected to the Gravettian⁵⁷.

Judging by separate finds clusters, six household complexes (I–VI) were determined, spread over ~200 m along the riverside (Fig. 7: A). Four of them are thought to be remains of dwellings. Both complex I and the southern complex II are interpreted as production centers for flint knapping and tool manufacturing. These complexes are interspaced with cultural layer sections having relatively sparse finds. The inventory of Anosovka type is associated exclusively with dwelling features (Fig. 7: B).

Remains of dwellings are represented by lenses of ash mass clusters, stone artefacts, bones and ocher⁵⁸. In the plan, they have a circular-oval shape and occupy an area of 10–16 mm². Three of them had deepened hearths. Near one of the dwellings (the northern complex), limestone tiles contoured the remains of a structure from the eastern and southern sides. The stone tool collection found in the dwellings (n ~ 2700) amounts to 271 tools. The most numerous and expressive types are backed vertically retouched points and blades (Anosovka points), as well as knife-shaped blades with transverse and oblique truncated ends (see Fig. 7: B, 1–6). These are followed by burins, including burins on re-touched truncation and multiple ones, in addition to scrapers. Osseous inventory is represented by fragments of three points and adornments such as oval pendants made of

⁵⁴ Abramova Z. A. Izobrazheniia zhivotnykh s paleoliticheskoi stoianki Aleksandrovka // *Kratkie soobshcheniia Instituta arkheologii*. 1961. Iss. 82. P.97–103; Rogachev A. N. Anosovka II — novaia mnogoslonoia stoianka v Kostenkakh. P.86–96; Anikovich M. V. K probleme sinkhronizatsii nekotorykh pozdnepleoliticheskikh pamiatnikov Kostenkovsko-Borshchevskogo raiona // *Kratkie soobshcheniia Instituta arkheologii*. 1983. Iss. 173. P.16–31.

⁵⁵ Sinitsyn A. A. K probleme kul'turnoi prinadlezhnosti Pushkarei 1 // *Problemy arkheologii epokhi kamnia: k 70-letiiu Valentiny Ivanovny Beliaevoi: sbornik nauchnykh statei*. St. Petersburg, 2014. P.234–244. (Trudy istoricheskogo fakul'teta Sankt-Peterbgskogo universiteta. Vol. 18).

⁵⁶ Akhmetgaleyeva N. B. Kamennyi vek Poseimia: verkhnepleoliticheskaya stoianka Byki 7. Kursk, 2015. P.181–184.

⁵⁷ Praslov N. D. Gmelinskaia stoianka v Kostenkakh // *Kratkie soobshcheniia Instituta arkheologii*. 1964. Iss. 97. P.59–63; Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P.198–209.

⁵⁸ Ivanova M. A. Zhiloi kompleks Gmelinskoi pozdnepleoliticheskoi stoianki v Kostenkakh // *Kratkie soobshcheniia Instituta arkheologii*. 1981. Iss. 165. P.37–42.

mammoth tusk. Overall, the inventory is identical to the finds of Kostenki 11/II, except for the absence of marl figurines.

Artefacts found in manufacturing complexes of Kostenki 21/III differ dramatically both from the toolkit found at the site of dwelling and from Kostenki 11/II inventory by the knapping technique, as well as the tools types (see Fig. 7: B). The collection has pronounced Gravettian features given a large number of microblades and tools on microblades, with shouldered points and numerous ivory and bone tools. According to M. N. Ivanova and N. D. Praslov⁵⁹, such differences can be explained by specifics of activity taking place in dwellings and on tool production areas.

M. V. Anikovich and V. V. Popov united the finds of the second cultural layer of Kostenki 11 with those of the lower layer on the Gmelinskaia site, and with the scarce inventory of Kostenki 5/III under the term of *Anosovka-Gmelinskaia archeological culture*, proposing an alternative interpretation of the typological differences between sites. They believe such differences could be caused by the seasonal character of habitation — a winter settlement on Kostenki 11/II and a summer settlement on Kostenki 21/III⁶⁰. From my point of view, such explanation is unsubstantiated since it is based solely on the presence of bone coal in the dwellings of Kostenki 11/II in contrast to Kostenki 21/III, where charcoal prevailed.

It should be noted that in Kostenki 21/III the finds clusters of two different cultures were found in alternating deposition. Their appearance is not connected to the presence or absence of various household structures of habitation or seasonal character of settlement. Palimpsest cultural layers with separate clusters, left by single- or multi-cultural population groups, are quite common for the Neolithic-Mesolithic sites. The same is true for the KBR at sites of the first terrace of the Don (Kostenki 4, Kostenki 21, Borshchevo 1 and 2). Thus, artefacts of the lower layer of the Gmelinskaia site should be divided into two cultural complexes — Anosovka (“dwellings”) and Gmelinskaia (“manufacturing features”). Therefore, each of these groups becomes typologically accurate and can be described within a specific cultural and archaeological context.

Gmelinskaia complex (Kostenki 21/III — production areas)

Kostenki 21/III production complexes are characterized by a large area (40 and ~80 m² respectively). These are long lenses of a cultural layer with ash spots and high concentration of finds. At least one open hearth was documented in complex I, while in complex II no hearths were found. Stone tool collections amount to n ~ 7,500 for complex I and n ~ 24,000 for complex II. The number of artefacts with secondary treatment is quite significant (n > 1000).

In production complexes, as opposed to the dwelling sites, the main tool blanks were regular blades and microblades (> 50 % of all the items). There are predominantly dihedral burins or burins on retouched truncation found in the collection. Backed points are

⁵⁹ Ivanova M. A.: 1) Zhiloi kompleks Gmelinskoi pozdnepaleoliticheskoi stoianki v Kostenkakh; 2) Struktura Gmelinskogo paleoliticheskogo poseleniia (po rezultatam planigraficheskogo i tipologicheskogo analiza kremnevoogo inventaria). Avtoref. dis. ... kand. ist. nauk. Leningrad, 1985; Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P. 209.

⁶⁰ Anikovich M. V., Popov V. V., Platonova N. I. Paleolit Kostenkovsko-Borshchevskogo raiona v kontekste verkhnego paleolita Evropy. S. 205–206.

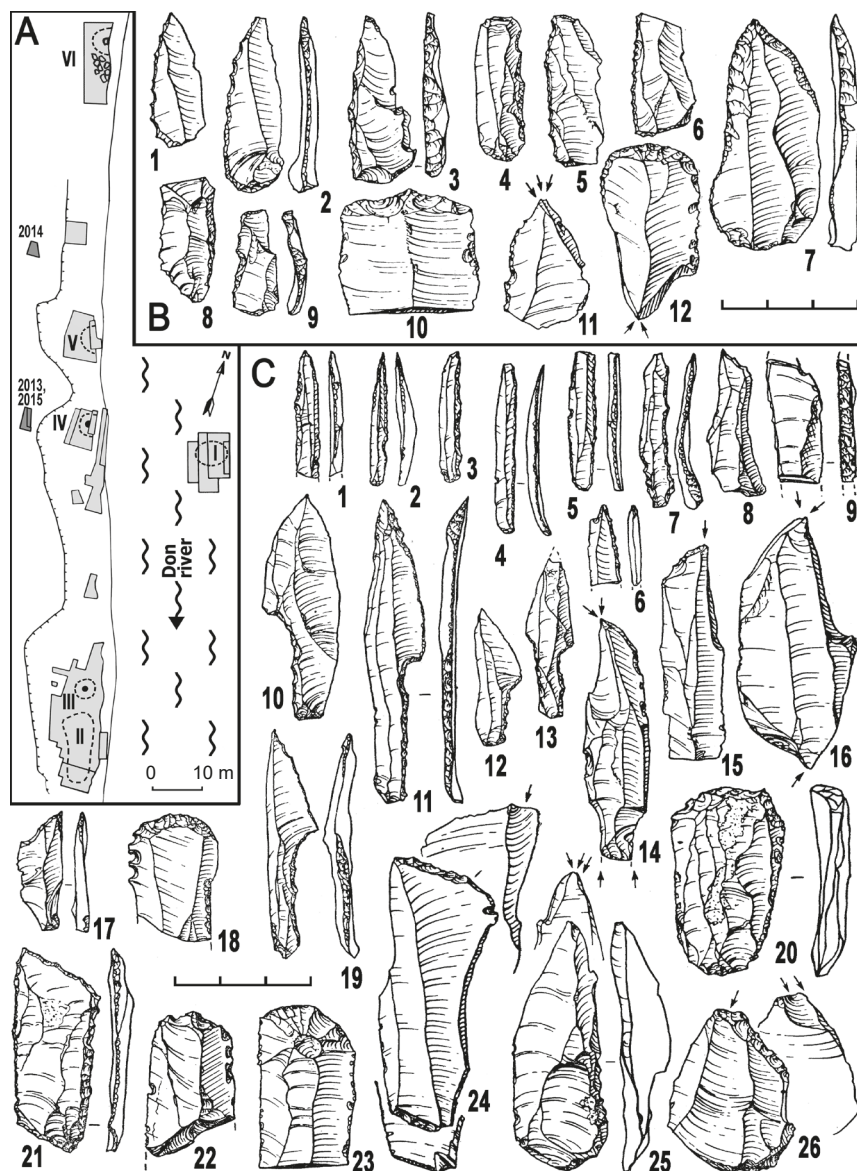


Fig. 7. Kostenki 21, the lower cultural layer: A — excavations and testpits scheme (I and II — «manufacturing» complexes; III through VI — «dwelling» complexes); B — stone assemblage of the complex IV; C — stone assemblage of the complex II (modified from: *Paleolit Kostenkovsko-Borshchevskogo raiona na Donu...* 1982)

miniature and are of a microlithoid appearance. Backed microblades have a sharpened or natural end (see Fig. 7: B, 1–7). Shouldered points ($n > 100$) make up an expressive category. In contrast to the Kostenki-Avdeev points, the notch does not exceed half of the blank length (see Fig. 7: B, 10–13, 19). Bone tools vary — they comprise a series of ivory points, awls, an eyed needle, several flounder-shaped pendants and a pendant made of a reindeer canine tooth. Rare items include an ivory “shaft straightener” with a fir-tree ornament,

as well as an item that is interpreted as a handle. Apart from that, there are two unique engravings of zoomorphic images on stone discs⁶¹.

During the recent work of A. A. Bessudnov, the remains of two more lenses with flint inventory corresponding to the toolkit of “production centers” were found on Kostenki 21. In my opinion, a wide distribution of Gmelinskaia type finds, including those in the newly unearthed areas, confirms that they are not simply functional, but bear an independent cultural character⁶².

Parallels to the Gmelinskaia complex can be drawn at Gagarino site on the upper Don⁶³. The Gmelinskaia complex is similar to the industry of Gagarino due to a pronounced microlithoid character of flint tools, the use of blades and their fragments to make tools, a combination of burins on retouched truncation and dihedral burins of similar morphology, besides a series of shouldered points on microblades with the notch taking up half of the blank length.

The same features unite Kostenki 21/III and Khotylevo 2 on the Desna. The Gagarino site has even more common features with the latter one: Kostenki type knives, bone and ivory tools and art objects, including typical female figurines⁶⁴. Differences between the Gmelinskaia and Khotylevo-Gagarino toolkits are mostly negative. For instance, the Kostenki 21/III site has practically no ventral retouching on tools. Some tool types characteristic of the Eastern Gravettian are absent from the toolkit. This difference is also reinforced by the absence of specific bone and ivory items and typical design elements.

Nevertheless, the Gmelinskaia complex is closer to the classic sites of the Eastern Gravettian than any other Gravettian complexes in Kostenki, which are not immediately connected to the Kostenki-Avdeevo culture. In the Gmelinskaia industry, distinguishing features are miniature shouldered points, having prototypes in the Eastern Gravettian. In this regard, the Gmelinskaia complex can be seen as a borderline that separates the Gravettian *sensu lato* from the Epigravettian.

Stratigraphy and geomorphological correlation

The KBR Gravettian sites are associated with the so-called loess-like loam uppermost bed, which completes the local Pleistocene sedimentation column. The only exception could be Kostenki 8/II horizon, enclosed in the horizon of a reduced upper humus stratum, directly covered by loess-like loam. The upper humus stratum is usually compared with the Bryansk paleosoil, and in the KBR it is considered isochronous to 32–28 ky BP (uncal).

However, according to the latest research of Kostenki 8, younger datings of 23.3 and 25.6 ky BP (uncal) were obtained for the second cultural layer. Therefore, cautious doubts

⁶¹ Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P.208–209.

⁶² Bessudnov A. A. Issledovaniia III kul'turnogo sloia Kostenok 21 v khode spasatel'nykh rabot 2013–2014 gg. // *Novye materialy i metody arkheologicheskogo issledovaniia. Materialy III Mezhdunarodnoi konferentsii molodykh uchenykh*. Moscow, 2015. P. 10–12.

⁶³ Tarasov L. M. Gagarinskaia stoianka i ee mesto v paleolite. Moscow, 1979.

⁶⁴ Gavrilov K. N.: 1) Tipologiiia kamennykh orudii i kulturnaia prinadlezhnost' Khotylevskoi verkhnepaleoliticheskoi stoianki // *Problemy kamennogo veka Russkoi ravniny*. Moscow, 2004. P.262–284; 2) Verkhnepaleoliticheskaiia stoianka Khotylevo 2. Moscow, 2008; 3) Migratsiia, diffuziia, razvitie? K voprosu o proiskhozhdenii vostochnogo gravetta na Russkoi ravnine. P.29–50.

are being voiced concerning the orthodox view on the age of the enclosing horizon⁶⁵. I believe the “humus content” can be explained by the presence of washed-out hearth structures containing charcoal and ash, and not by association with this very stratum. Regardless, it can be argued that the majority of the KBR Gravettian settlements existed during the cold cycle of loess sedimentation corresponding to the final phase of the middle Weichselian glaciation.

Buried soils may be used as additional stratigraphic markers to divide the loess-like bed into parts. Episodes of soil formation, which are associated with the Gravettian cultural layers, have been repeatedly recorded. In particular, up to four ephemeral fossil soils can be distinguished in the Kostenki 14 loess member, of which the two lower ones are associated with Gravettian finds⁶⁶. Two levels of soil formation were recorded on Borshchevo 5, and both contain Gravettian artefacts. At least one distinct paleosol (the Gmelin one) can be distinguished at the level of the Gravettian layer bedding on Kostenki 1, Kostenki 21 and, possibly, on Kostenki 11⁶⁷.

Chronology and periodization

Over a hundred datings have been obtained on samples from the KBR Gravettian cultural layers. Almost half of them comes from the upper cultural layer of Kostenki 1. Datings on bone samples are prevalent. Existing 14C datings, in average uncalibrated values, determine the period of existence of the KBR Gravettian from ~27,000 (Kostenki 8/II) to ~21,000 yr BP (Kostenki 21/III). Effectively, in a series of datings, they vary for almost each site, providing an opportunity to demonstrate one's chronological preferences and choose a specific timepoint accordingly. The most reliable method for development of the Kostenki Gravettian periodization is to examine certain complexes in comparison to the Gravettian sites of other regions and see if they mutually correlate. In accordance with common European ideas on periodization of the Upper Paleolithic, the KBR Gravettian can be divided into the early period of 27,000–25,000 yr uncal BP, the middle one of 25,000–24,000 yr uncal BP, and the late one of 23,000–21,000 yr uncal BP. Given a common archaeological context of the identified KBR Gravettian cultural groups with the sites of Eastern and Central Europe, as well as the compliance of datings, we can determine the cultural and chronological succession of these complexes (Table 1).

⁶⁵ Dudin A. E., Pustovalov A. Yu., Platonova N. I. Vtoroi kul'turnyi sloi stoianki Kostenki-8 (Telman-skaia): struktura, ob'ekty mikrostratigrafii. P. 41–52.

⁶⁶ Sedov S. N., Khokhlova O. S., Sinitsyn A. A., Korkka M. A., Rusakov A. V., Ortega B., Solleiro E., Rozanova M. S., Kuznetsova A. M., Kazdym A. A. Pozднеpleistotsenovyе paleopochvennyе seriei kak instrument lokalnoi paleogeograficheskoi rekonstruktsii (na primere razreza Kostenki 14) // Pochvovedenie. 2010. No. 8. P. 938–955; Sinitsyn A. A. Kostenki 14 (Markina gora) — opornaia kolonka kul'turnykh i geologicheskikh otlozhenii paleolita Vostochnoi Evropy dlia perioda 27–42 tys. l. n. // Drevnie kul'tury Vostochnoi Evropy: etalonnye pamiatniki i opornye komplekсы v kontekste sovremennykh arkheologicheskikh issledovani. Zamiatninskii sbornik. Iss. 4. St. Petersburg, 2015. P. 40–59.

⁶⁷ Paleolit Kostenkovsko-Borshchevskogo raiona na Donu... P. 116; Popov V. V., Pustovalov A. Yu. Poselenie 2-go kulturnogo sloia stoianki Kostenki 11 (Anosovka 2). P. 3–8; Hoffecker J. F., Holliday V. T., Anikovich M. V., Dudin A. E., Platonova N. I., Popov V. V., Levkovskaya G. M., Kuz'mina I. E., Syromyatnikova E. V., Burova N. D., Goldberg P., Macphail R. I., Forman S. L., Carter B. J., Crawford L. J. Kostenki 1 and the early Upper Paleolithic of Eastern Europe // Journal of Archaeological Science: Reports. 2016. Vol. 5. P. 307–326.

Table 1. The periodisation and chronology of the Gravettian assemblages in the Kostenki-Borshchevo locality

Periodization (14C uncal.) and chronology	Cultural attribution	Sites / Layers	Dates (14C uncal. BP)	Related sites
Early Gravettian (27–25 ky BP (uncal))	<i>Telman- skaia complex</i>	Kostenki 8/II	27700 ± 750 (GrN-10509) ^a 27670 ± 270 (OxA-30198) ^b 27620 ± 270 (OxA-30197) ^b 25640 ± 210 (CURL-15797) ^c 24500 ± 450 (GIN-7999) ^d 23340 ± 150 (CURL-15816) ^c 23020 ± 320 (OxA-7109) ^d 21900 ± 450 (GrA-9283) ^e	Grotta Paglicci /23a Geißenklösterle /Ic Abri Pataud /5
Middle Gravettian (25–24 ky BP (uncal))	<i>Aleksan- drovka complex (Pavlovian)</i>	Kostenki 4/I-II	25290 ± 210 (OxA-30194) layer I/II ^b 24790 ± 190 (OxA-30193) layer I/II ^b 24710 ± 200 (OxA-30196) layer I/II ^b 23000 ± 300 (ГИН7994) layer I ^d 22800 ± 120(ГИН7995) layer I ^d 20290 ± 150 (OxA8310) layer I/II ^f 14210 ± 70 (OxA-30195) layer I/II ^b	Pavlov 1 Milovice
		Kostenki 9	—	Jaksice 2
		Borshchevo 5/I	25110 ± 200 (OxA-30200) layer Ia ^b 24720 ± 190 (OxA-30199) layer Ia ^b 22500 ± 700 (ГИН-10239) ^g 20000 ± 300 (ЛЕ-6947) ^g 17400 ± 2000 (ЛЕ-5571) ^g 14060 ± 110 (ЛЕ-6809) ^g	Kašov I Grub Kranawetberg
Late Gravettian (23–21 ky BP (uncal))	<i>Kostenki- Avdeevo complex (East Gravettian)</i>	Kostenki 1/I	>45 dates from 24570 to 8700 kyr mainly concentrated 23–22 kyr ^h	Willendorf 2/IX
		Kostenki 13	—	
		Kostenki 18	23440 ± 150 (OxA-X-2666-53) ^k 21020 ± 180 (OxA-7128) ^d 20600 ± 140 (ГИН-8032) ^d 19830 ± 120 BP (GrA-9304) ^e 19300 ± 200 (ГИН-8576) ^d 17900 ± 300 (ГИН-8028) ^d	Kraków Spadzista Moravany
		Kostenki 14/I	22 940 ± 100 (GrA-46676) ⁱ 22780 ± 250 (OxA-4114) ^d 22500 ± 1000 (ЛЕ-5274) ^d 21 090 ± 220 (AA-91465) ⁱ 20 730 ± 90 (GrA-46677) ⁱ 20100 ± 1500 (ЛЕ-5269) ^d 19900 ± 850 (ГИН-8024) ^d 19700 ± 1300 (ЛЕ-5567) ⁱ	Avdeevo Zaraisk Berdyzh
	<i>Gmelin- skaia com- plex</i>	Kostenki 21/ III «production centers»	22860 ± 320 (GrN-24968) ^f 22270 ± 150 (GrN-7363) ^a 22230 ± 100 (GrN-14669) ^f 21780 ± 90 (ГИН-9668) ^j	Gagarino Khotylevo 2
Epi- Gravettian (≤ 21 ky BP (uncal))	<i>Anosovka complex</i>	Kostenki 21/III “dwellings”	21260 ± 340 (GrN-10513) ^a 16960 ± 300 (ЛЕ-1043) ^a	Pushkari 1
		Kostenki 11/II	21800 ± 200 (ГИН-2531) ^a 15200 ± 300 (ТА-34) ^a	Byki 7

^a Paleolit Kostenkovsko-Borshchevskogo raiona na Donu. 1879–1979: nekotorye itogi polevykh issledovaniy / ed. by N. D. Praslov, A. N. Rogachev. Leningrad, 1982.

^b Reynolds N., Lisitsyn S. N., Sablin M. V., Barton N., Higham T. F. G. Chronology of the European Russian Gravettian: new radiocarbon dating results and interpretation // *Quartär*. Vol. 62. 2015. P. 121–132.

^c Dudin A. E., Pustovalov A. Iu., Platonova N. I. Vtoroi kul'turnyi sloi stoianki Kostenki-8 (Telmanskaia): struktura, ob'ekty mikrostratigrafii // *Vestnik NGU. Seriya. Istoriia, filologiya*. Vol. 15, no. 3. Arkheologiya i etnografiia. Novosibirsk, 2016. P. 41–52.

^d Sinitsyn A. A., Praslov N. D., Svezhentsev Yu. S., Sulerzhitskii L. D. Radiouglerodnaia khronologiya paleolita Vostochnoi Evropy // *Radiouglerodnaia khronologiya paleolita Vostochnoi Evropy i Severnoi Azii: problemy i perspektivy* / eds A. A. Sinitsyn, N. D. Praslov. St. Petersburg, 1997. P. 21–66.

^e Sinitsyn A. A. Les sépultures de Kostenki: chronologie, attribution culturelle, rite funéraire // *La Spiritualité: Actes du colloque de la commission 8 de l'UISPP (Paléolithique supérieur)*, Liège, 10–12 décembre 2003. *Études et Recherches Archéologiques de l'Université de Liège* / ed. by M. Otte. Liège, 2004. P. 237–244.

^f Zheltova M. N. Kostenkovskie stoianki pervoi nadpoimennoi terrasy: varianty adaptatsii k okruzhaiushchei srede verkhnego pleistotsena // *Problemy biologicheskoi i kul'turnoi adaptatsii chelovecheskikh populiatsii: sbornik statei, posviashchennyi 100-letiiu so dnia rozhdeniia M. M. Gerasimova*. Vol. 1. Arkheologiya. Adaptatsionnye strategii drevnego naseleniia Severnoi Evrazii: syr'e i priemy obrabotki / ed. by G. A. Khlopachev. St. Petersburg, 2008. P. 48–52.

^g Lisitsyn S. N. Khronostratigrafiia i arkheologiya stoianki Borshchevo 5 po dannym raskopok 2002–2003 gg. // *Kostenki i ranniia pora verkhnego paleolita Evrazii: obshchee i lokalnoe*. *Materialy Mezhdunarodnoi konferentsii. Kostenki, 23–26 avgusta, 2004* / eds M. V. Anikovich, N. I. Platonova. Voronezh, 2004. P. 66–79.

^h Anikovich M. V., Popov V. V., Platonova N. I. Paleolit Kostenkovsko-Borshchevskogo raiona v kontekste verkhnego paleolita Evropy / ed. by M. V. Anikovich. St. Petersburg, 2008.

ⁱ Sinitsyn A. A. Preryvistost i preemstvennost v paleolite Kostenok // *Verkhnedonskoi arkheologicheskii sbornik*. Iss. 6 / ed. by A. N. Bessudnov. Lipetsk, 2014. P. 66–76

^j Sinitsyn A. A. K probleme kul'turnoi prinadlezhnosti Pushkarei 1 // *Problemy arkheologii epokhi kamnia: k 70-letiiu Valentiny Ivanovny Beliaevoi: sbornik nauchnykh statei*. St. Petersburg, 2014. P. 234–244. (*Trudy istoricheskogo fakul'teta Sankt-Peterbgskogo universiteta*. Vol. 18)

^k Reynolds N., Dinnis R., Bessudnov A., Deviese T., Higham T. The Kostënki 18 child burial and the cultural and funerary landscape of Mid Upper Palaeolithic European Russia // *Antiquity*. 2017. Vol. 91, iss. 360. P. 1435–1450.

Conclusion

Archaeological unity of the Gravettian sites is synstadial in character, which is expressed by common features of inventory and technological basis, and, potentially, by the type of economic adaptation caused by cooling and aridization of the climate. It seems the reasons behind cultural diversity of the KBR Gravettian should be attributed to favorable environmental conditions of this local area to arrange encampment settlements⁶⁸.

Taking into account European archaeological context, cultural differentiation of the Kostenki Gravettian takes form of a relatively orderly periodization. Cultural complexes can be distinguished by distinct features of material culture. They are linked to different

⁶⁸ Lisitsyn S. N. Epokha gravetta v Kostenkakh: kul'turnaia istoriia i paleolandshaft // *Puti evoliutsionnoi geografii: materialy Vserossiiskoi nauchnoi konferentsii, posviashchennoi pamiati professora A. A. Velichko*. Moscow, 2016. P. 687–692.

chronological episodes and have corresponding analogies among the sites of Eastern and Central Europe.

The first manifestation of the Gravettian ~ 27,000–25,000 yr uncal BP was marked by the emergence of a population group with the Kostenki 8/II industry type in the basin of the Don river. The second wave of settlers (25,000–24,000 yr uncal BP), associated with the Pavlovian, shaped the Aleksandrovka complex belonging to the middle Gravettian. The Gravettian succession in the KBR is completed by the Kostenki-Avdeev complex (23,000–22,000 yr uncal BP). It is possible that the peak of cooling after 21,000 yr uncal BP led to the emergence of local industries of Anosovka and Gmelin type. The latter largely inherits Gravettian traditions, while Anosovka type belongs to a different line of cultural development.

People of the Gravettian era occupied the Don basin in waves, settling in the tundra-steppe landscape zone, which on the eve of the glacial maximum united the territories of Central and Eastern Europe into a single ecosystem. At the same time, no signs of mixing or hybridization of various generations of the KBR Gravettian may indicate that the waves of these populations followed each other consequently, which leaves open the question if there were any direct contacts between them.

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